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FOUNDED BY WILLIAM HUNTING, F.R.C.V.S.

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THE PROFESSION AND THE STATE.

From time to time we have reprinted portions of the reports of Indian and Colonial State veterinary departments; often we have had to pass over others unnoticed in our pages, owing simply to exigencies of time or space. Much that is included in these reports only appeals directly to a relatively small section of our readers, yet there is always something, either directly or inferentially, of general professional interest in them—those we print this week help to summarise the progress of protective inoculation in a large field.

But there is one outstanding feature common to all of them—they are records of work faithfully done; work unquestionably of considerable value to the State, although their money value cannot be definitely stated.

These men are diplomates of the R.C.V.S., graduates of our teaching colleges; and it is a fair inference that other men in the profession, to whom the opportunity for such work has not fallen, are equally capable. Do not these records go far to justify the claim of our profession to a better recognition than it has yet received? A young profession—our first Charter is dated just 70 years ago; numerically small—our Register carries 3408 names; with a range of work from that of the country practitioner with farm animals for the bulk of his patients, to those aiding the Public Health work of our cities with populations of three-quarters of a million, and the men in charge of the animal health of huge districts in India and the Colonies; yet the Tuberculosis Order, 1913, is the first official acknowledgment in this country of our capacity to serve the State in a larger measure.

MR. MOND ON TUBERCULOSIS IN COWS.

During the last month or two paragraphs and letters have appeared concerning the views of Mr. Mond on the sterilisation of milk and the production of a pure milk supply. This week we report an address to a meeting of Cheshire farmers in which Mr. Mond gives a fuller exposition of his views, with some remarks on the value of the tuberculin test and on tuberculosis in cows. With the results of sterilisation we are not immediately concerned, but the remarks on the disease in cattle are likely to prove mischievous, for they deal with a part of the question only—the transmission to man, or rather to infants, and only tend to confuse the question of the animal disease.

Reports, both in this country and abroad, testify to the varied and often unsuspected manifestations of the disease in animals. For years past practitioners have striven against the dissemination of tuberculosis, with almost daily experience of neglect of the disease and its infectious nature by farmers, many of them ignorant, many careless, and nearly all very humanly objecting to destroy property which they could turn into money. Mr. Mond tells them that tuberculosis is of little importance; that he would not hesitate to sell an animal which reacts to the tuberculin test in a market; that probably not more than 5 per cent. of the cows suffer from anything which may decently be called tuberculosis: that milk from a reacting cow is no worse than another unless emaciation or other unfavourable symptoms supervene.

How well these pronouncements jumped with the views of his audience may perhaps be judged by the fact that they accorded him a vote of thanks by rising and singing "For he's a jolly good fellow."

PHARYNGITIS, WITH CERVICAL ABSCESS OPENING INTO THE TRACHEA.

Janin reports (*Journal de Méd. Vét. et de' Zootechnie*) the following case. During the course of an epizootic of angina and phlegmonous pharyngitis, a horse was brought into the infirmary with a temperature of 102° F. The animal was salivating abundantly, but the appetite was good.

After two days the salivation disappeared, but the temperature rose to 104·7° F., and a discharge, which was evidently alimentary, was rejected by the nostrils. Deglutition was difficult, and the pharyngeal region was very sensitive to pressure, clearly indicating pharyngitis. This was treated by applying a blister round the throat, and administering an electuary composed of honey and turpentine.

During the following days the appetite persisted, but the dysphagia was so great that all oats were rejected by the nostrils in a dough-like form, and the unsuccessful attempts to swallow were invariably succeeded by a fit of coughing.

In the other animals affected during the epizootic, the disease had always taken a rather rapid course, and although sometimes the symptoms had been alarming, had always terminated in a clear resolution. The case in question took a different course. The symptoms persisted, though they became much less acute, and a dry and intermittent cough, with a mucous nasal discharge which on rare occasions was very slightly purulent, threatened the establishment of a chronic pharyngitis.

A seton was now inserted into each parotid region. A diffuse puffiness then appeared on the left thyroid region, and was explored with a trocar without result. During the following days this swelling remained stationary, almost insensitive,

showing no fluctuating point, and causing no trouble to the animal. Two further attempts to discover fluid within it were made by incising the skin and lacerating the subjacent tissues, but no success was attained. Nevertheless the horse preserved good spirits and a certain amount of appetite, till one morning he was quite unexpectedly found dead in the stable.

Post-mortem, in addition to lesions of secondary importance, it was found that the region corresponding to the posterior part of the larynx and to the first rings of the trachea was hidden in an œdematous lardaceous connective tissue which surrounded all the muscles of the tracheal region and also the thyroid bodies, particularly the left one. The larynx and the trachea could only be isolated by excising a veritable fibro-œdematous "muff," and some of the tracheal rings were damaged during this operation. On the left side the jugular and carotid were completely shut in, as was also the œsophagus, the fleshy tunic of which was united to the reactional fibrous tissue.

Between the neck and the posterior part of the trachea was an abscess, bulging to the left, and extending exactly from the third to the eighth tracheal ring. The pus had penetrated the posterior part of the trachea between the third and fourth rings, had then burrowed underneath the tracheal mucous membrane from the third to the sixth ring, and had finally penetrated into the trachea by two oval and closely adjacent openings, which appeared as if cut by a punch.

The original abscess had resulted from suppuration of the most posterior lymphatic glands of the left retro-pharyngeal group, or, more probably, of the small middle cervical glands. The abscess, protected by the trachea and tracheal muscles, and encysted in fibro-lardaceous reactional tissue, had not been reached by the repeated surgical explorations, and had finally burst into the trachea.

The case teaches that deeply situated abscesses behind the trachea should never be left to take their own course. They should be operated upon early by a careful dissection, so as to reach the purulent centre without injuring the important structures of the jugular furrow.—(*Annales de Méd. Vét.*)

A Specific Epizootic Form of Necrobacillosis in the Goat.

Pesadori describes (*La Clin. Vét.*) a very contagious affection of the claws, peculiar to goats, which appeared in some Calabrian districts at the beginning of last winter, and affected about 10,000 animals in the course of two months. Sheep and cattle, kept under the same conditions as the goats and constantly exposed to infection, remained free from disease.

The disease begins by a limping upon one hind foot, and a few hours later the animal is going upon three legs. The cleft of the claws and the rim of the coronet swell considerably, and the foot is hot and sensitive to pressure. A fluctuating centre soon appears at one point, opens, and discharges a crumby, thick, dirty pus, mixed with blood and shreds of necrotic tissue. The animal is depressed, refuses food, groans, and is feverish. The fever is slight at the commencement, and afterwards increases with the extent and severity of the lesions of the claws. She-goats with kids lose their milk during the acute stages, and pregnant animals sometimes abort.

If the disease is neglected, the necrotic and suppurative process extends and leads, if no operative interference is undertaken, to septicæmia and death. If treated early with disinfectant, astringent, and desiccant agents, the disease takes a comparatively short and mild course, lasting about eight to twelve days. But it often occurs that, after healing of one foot another becomes affected, and the animal then loses greatly in condition, and not rarely dies of marasmus.

The cause of the disease is probably the necrosis bacillus, which finds entry into the organism through slight solutions of continuity in the horn of the claws and in the cleft of the claws. Extreme moisture of the ground, by its softening and loosening action upon the horny tissues, favours infection.—*Berliner Tier. Woch.*

Dermatomyoma in a Cat.

The dermatomyoma or dermatoleiomyoma is usually a multiple tumour, and is very slow and benign in its evolution. It is very rare in man, and hitherto unknown in animals.

Ball now records (*Journal de Méd. Vét. et de Zootechnie*) the following case in a six-year-old cat. Behind the shoulder, to the right of the middle line of the back, was an oval neoplasm about 3 1-5th inches long by 2 2-5th inches broad, involving both the skin and subcutis. The skin, which was in union with the neoplasm, showed a certain degree of alopecia; it appeared slightly translucid in one point, near which was a fistulous orifice giving exit to a yellowish-brown purulent liquid. The neoplasm was firm in consistence, but was hollow; its centre was traversed by an elongated cavity following its grand axis.

On the left side of the thorax was a second neoplasm, similar to the first, but smaller.

Histologically, these neoplasms were found to be dermatomyomata. They were constituted by clusters or bundles of smooth muscular fibres running in all directions, and united by an insignificant framework of connective-elastic tissue.—(*Annales de Méd. Vét.*

Neoplasmata in the Testicle.

R. Galli describes (*Il nuovo Ercolani*) several of these cases. One was an enchondroma of the left testicle in a three-year-old colt. The tumour had a lobulated appearance, and consisted of a fibrous tissue, in which numerous islands of hyaline cartilage, often ossified in the centre, were imbedded. The cartilage cells, most of which were uninuclear, were generally round or oval, but occasionally also they were spindle-shaped, In the neighbourhood of the islands of cartilage, between the connective tissue fibres, young round cells occurred which ap-

peared similar to sarcoma cells. Fat occurred in places, in both the connective and cartilaginous tissue.

The testicle felt lumpy when palpated. It was rounder in shape than usual, in consequence of an increase in its transverse diameter; and it weighed 160 grammes (= about 5 5-8th oz.) The epididymis was atrophied.

Three cases of fibroma of the testicle are also described. Two were in asses, one in a horse. All three animals were of advanced age. The tumours were benign fibromata, hard in consistence, and ranging from the size of a pea to that of the fist. They commenced from the tunica albuginea, and were either attached to the testicle by broad surfaces or adhered to it in the form of cords of varying thickness. In one case (an ass) both testicles were affected, the right one weighing 385 grammes and the left 207 (very approximately these weights equal 6-7th lb. and 3-7th lb.—(*Berliner Tier. Woch.*)

W. R. C.

"A Description of the Imperial Bacteriological Laboratory, Muktesar: Its Work and Products."—By Major J. D. E. Holmes, M.A., D.Sc., M.R.C.V.S., Imperial Bacteriologist. Calcutta: Superintendent Government Printing, India, 1913.

[Abstract.]

In 1890, the first step was taken towards providing facilities for the investigation of the diseases of stock in India. Dr. Lingard was appointed as Imperial Bacteriologist in connection with the Laboratory at the College of Science, Poona. His duties were thus defined.

"To investigate diseases of domesticated animals in all Provinces in India, and to ascertain, as far as possible, by biological research both in the Laboratory and, when necessary, at the place of outbreak, the means for preventing and curing such diseases."

For some years Dr. Lingard worked in the Poona Laboratory mainly on the investigation of Surra in horses. He found, however, that the climate of the plains rendered laboratory research work extremely difficult and was also little suitable for the manufacture and preservation of vaccines and serums. Consequently, in 1893, it was decided to remove the Laboratory to a suitable site in the Hills, and Muktesar was selected for this purpose.

In 1895 the Laboratory main building (part of which was used by Dr. Lingard as his residential quarters), a post-mortem house, two out-houses, one cattle shed, a bungalow for the Assistant Bacteriologist, and an out-Kraal for cattle were completed. The staff consisted of the Imperial Bacteriologist, Assistant Bacteriologist, one native laboratory assistant, three clerks, one artist and some menials. At this time the investigation of rinderpest and measures of prophylaxis were taken up, and in the following year Professor Koch, at the request of the Government of India, visited Muktesar and demonstrated his bile method of inoculation against rinderpest. During the following three years rinderpest, and the methods of preparing a potent antiserum, were further investigated. Two more cattle sheds, a sterilising house, snow well and cold room were added to the buildings.

In 1898 Dr. Lingard was compelled to return to England on sick leave for two years. During this time Major Leonard Rogers held charge of the Laboratory and continued the experiments on rinderpest antiserum.

In 1899 a fire broke out in the western end of the laboratory and the whole building was completely burnt down. The reconstruction of the laboratory was at once commenced. A water supply scheme was taken in hand, and also sanction was obtained for the establishment of a branch laboratory at Bareilly, for the purpose of carrying out certain investigations during the winter months of each year.

A potent rinderpest serum having been prepared, and its application in outbreaks of the disease having met with success, a large and increased demand for the serum arose. To provide facilities for the preparation of a sufficient supply of the serum, more cattle sheds, and out kraals were built, the staff was also increased and more land was taken up for the accommodation of cattle and providing fodder.

In 1898 Mr. Kriebel was appointed Head Laboratory Assistant, and posts for two veterinary assistants and a farm jamadar were sanctioned.

In 1901-2 Lieut. Holmes relieved Lieut. Walker as Assistant Bacteriologist.

From 1901-1904 the preparation of antiserums for anthrax and hæmorrhagic septicæmia, of blackquarter vaccine, and of mallein were added to the list of work. Further accommodation was provided for this increase of work, a second European laboratory assistant was engaged, and other additions made to the staff. Oil engines and large centrifuges were installed and the gas and water pumping plant increased.

In the following years the demand for the products of the laboratory rapidly increased, and further accommodation had to be provided for the serum-preparing animals.

Three small out-laboratories for anthrax, blackquarter, and glanders were built and, at a later date, another wing was added to the main building.

A course of instruction in tropical veterinary diseases and in serum therapeutics was commenced for officers of the Army and Civil Veterinary Department. A bungalow for their accommodation was built. Each month a class of about six native veterinary graduates was instructed in the methods of serum injection and in the practical application of serums and vaccines. Quarters were provided for these men.

In 1907-8 Dr. Lingard retired, and Capt. Holmes was appointed Imperial Bacteriologist.

An Institute and tennis grounds for the recreation of the members of the staff were constructed, and a dispensary and hospital in charge of a sub-assistant surgeon were provided.

The meteorological observatory shed was equipped with extra instruments and converted into a second class departmental observatory.

At the present time the chief buildings in Muktesar are:—(1) Main laboratory buildings; (2) The three out-laboratories; (3) Sterilising house; (4) Centrifuge and serum rooms; (5) Serum filling and bottling house; (6) Packing house and carpenters' shop; (7) Bottle washing room; (8) Two cold storage rooms; (9) Grain and oil godowns; (10) Farm manager's office; (11) Power house and work shop; (12) Gas house; (13) Water pumping house; (14) Small animals' house; (15) Three stables to accommodate 25 horses; (16) Dog kennels; (17) Eleven sheds to accommodate 400 cattle; (18) Two post-mortem houses and incinerator; (19) Five operating sheds; (20) Six out-kraals to accommodate 300 cattle; (21) The institute; (22) The dispensary, hospital and segregation ward; (23) Dharmsala and shops; (24) Post and telegraph office; (25) Visitors' bungalow; (26) Public works department inspection bungalow; (27) School for the education of the children of the native staff.

Residences for the permanent staff which in 1912 consisted of:—*Imperial Bacteriologist.*—Major J. D. E. Holmes. *Assistant Bacteriologist.*—Mr. H. E. Cross.

Physiological Chemist.—Dr. P. Hartley. *Head European Laboratory Assistant.*—Mr. M. Kriebel. *2nd European Laboratory Assistant.*—Mr. D. Keiller. *3rd European Laboratory Assistant.*—Mr. G. P. Goffi. *Electrician.*—Mr. P. W. Crowshaw. *Farm Manager.* — Mr. McGinn. Two Senior and two Junior Veterinary Inspectors, Head Clerk, Accountant, Sub-Assistant Surgeon, Artist and Photographer, 2nd Clerk, Munshi, Despatcher and Meteorological Observer, Assistant Engineman, Storekeeper, Librarian, Farm Overseer, Farm Jamadar, Godown Keeper, 1st, 2nd and 3d Native Laboratory Assistants, Compounder, 10 Dressers, 26 Menials, 10 Laboratory Bearers, 2 Packers and Carpenters and 350 coolies and cattlemen.

Muktesar, locally known as Motesar, is situated at the summit of a hill on the inner Himalayas at an elevation varying from 7,500 to 7,702 feet. It is 23 miles by the bridle road North-East of Naini Tal and 13 miles South-East of Almora. The railway terminus Kathgodam is reached by two direct routes; one passing through Dhari, Champi, and Bhim Tal, 24 miles; the other through Ramgarh to Bhim Tal, 21 miles.

The Laboratory estate comprises 7,000 acres, about half of which is covered with oak forest and chir. The Furka, a tributary of the Kosi runs through the estate. Numerous bridle paths have been made connecting the Central Buildings with the out-Kraals situated at distances of 1 to 2 miles from the Laboratory.

The care of the forest and of the cultivation is in the charge of the Farm Manager assisted by the Farm Overseer, two Jemadars, and some 300 to 400 coolies.

A nursery garden is kept up and about 6000 plantings of Deodars, Chir, Walnuts, etc., are made each year.

The Laboratory main buildings. The main building with its accessary buildings is situated at an elevation of 7,500 feet. The Laboratory is two storied and constructed of stone. The whole building is practically fireproof, the roof being of corrugated iron and the floors of stone slabs. The second story rests on iron supports on which are laid iron sheets, covered with cement on which stone slabs are laid.

All the microscope rooms face north. There are three entrances from the south side to the east, west and new wings.

All the rooms are thoroughly equipped with all necessary apparatus and provided with water, gas, and electric light. The walls are lined with glazed tiles, and the floors laid with marble slabs.

The library contains some 3,500 volumes and subscribes to 101 scientific journals.

Out-Laboratories. Each of these consists of two large rooms; one contains incubators and sterilisers, the other is equipped as a microscopic room. All the work connected with serum preparation and investigation in Anthrax, Black-quarter, and Mallein, is carried out in their respective out-laboratories. This prevents the risk of the infection by sporulating organisms and of Glanders being brought into the main laboratory, and tends to the general safety.

The Dispensary and Hospital. The building, situated near the Post Office and Bazaar (native shops) has one ward with eight beds for menial establishment: one with two beds for the subordinate staff. (Attached to each of these wards is a kitchen, bath room, store room, yard, and latrine). An operating room: a dispensing room and store room: a segregation ward for infectious diseases is situated at a distance of about 200 yards from the hospital. It contains four beds and an attendant's room. The quarters of the sub-assistant surgeon are attached to the hospital. The compounder's quarters are separate at a short distance from the main building.

The average number of patients treated daily at the dispensary is 25.

Visitors' Bungalow. The visitors' bungalow was built for the accommodation of officers on training and officers visiting the laboratory. There are four bedrooms with dressing and bathrooms attached, and a large dining room, all fully furnished. A Khansama is kept at the bungalow and meals are supplied at the usual rates.

The Inspection Bungalow. This bungalow was formerly connected with a Government orchard which is part of the Laboratory estate. It now belongs to the Public Works Department and is used as a residence for the officers of that department when visiting Muktesar on duty.

The Branch Laboratory. The laboratory is situated about four miles outside Bareilly Cantonment on the Budaun road. It was built in 1901 for the purpose of carrying on certain investigations during the winter months of each year. The main building contains two offices, two microscope rooms and a sterilising room. There are five cattle sheds to accommodate about 100 animals, two operating sheds, a post-mortem house and incinerator and a store godown, and quarters for a European Laboratory Assistant and for four other clerks. The Laboratory stands in 30 acres of ground.

Chapter III.—Research work and Publications which occupies over five pages, summarises what has been done in these directions, and indicates the Government and other publications in which the reports have appeared.

The Practical Application of Serums and Vaccines in Combating Infective Diseases of Stock in India

The problem of dealing with infective diseases of animals in India presents many difficulties peculiar to local conditions. In a country like India where measures of treatment, segregation, or of police restriction cannot be imposed in the suppression of epidemics of stock, owing to the prejudices and feelings of the majority of native farmers, and also where the areas to be dealt with are so vast and frequently so difficult, no direct attempt at the total eradication of any endemic infective disease is feasible. Even if it were possible to eradicate a disease from any one province or from the whole of British territory in India it would be impossible to prevent its re-introduction through the frontier line. Consequently, the operations of the Government Veterinary Department are directed towards the suppression of outbreaks of epizootics as they occur, the treatment and protection of individuals being of less consideration and any systematic attempt at total eradication not being attempted.

Even this task of controlling the spread of infection is one of very considerable difficulty, as full and effective measures cannot be put into operation. The Veterinary Service has to rely solely on the aid of serums and vaccines and these can be used only when the owners consent to have their cattle treated. Measures of segregation and disinfection cannot be imposed without the sanction of each individual owner. The scarcity of fuel adds to the difficulty of disposal of infected carcases.

Glanders, Surra, Lymphangitis Epizootica and Dourine are the only diseases for the control of which legislative measures are in force. At the present time, after practical demonstrations of the benefits of serum injection in outbreaks of Rinderpest, during the past ten years, the use of serum is accepted without opposition in most districts of India. On the part of the Veterinary Service every care has to be exercised that whatever measures are adopted in dealing with an outbreak they shall be free from any danger to the lives of the animals treated, and shall in no way interfere with their work. Serum-therapy has proved to be the safest and most efficient method of operation under such conditions.

Dead vaccines can also be used with safety and confer an immunity of somewhat longer duration than the

serum alone process, but they are less suitable in face of actual outbreak, as the protection induced by them is not established for some days after the injection.

Vaccination by means of living but attenuated organisms is not practised, except against Black-quarter, as a prophylaxis in districts where the disease is seasonally prevalent. The danger of accidents following inoculations, of losses among treated cattle, and of establishing fresh foci of infection precludes this method from general practical use.

For the same reason the method of sero-vaccination which consists of a combined injection of a virus and its anti-serum is not of general practical application in this country.

Rinderpest. In India Rinderpest is the most prevalent and destructive disease of stock. The use of serum has proved of very great value in protecting cattle and in controlling the spread of infection. The immunity following an injection of serum lasts for two or three weeks only, but it has been found both by experiments and in practice that animals which receive an injection of serum and are exposed to actual infection within the period of protection, may contract a mild form of the disease which gives an active immunity of long duration.

Serum not only preserves the lives of the animals treated but it checks the spread of the disease, as the immunised animals are no longer a medium for the existence and transmission of the infection.

Indirectly the use of serum combined with actual exposure to infection by producing an active immunity and thereby increasing the number of immune cattle, is a factor which operates towards the ultimate eradication of the disease. In infective disease of a more sporadic nature, serum operations are less effective and more difficult to apply.

Anthrax. An outbreak of Anthrax spreading among and causing a number of losses among animals in one locality is not of frequent occurrence. In some districts the disease is prevalent during and immediately after the rains. Its appearance in any one locality is intermittent and seldom causes more than a few deaths at each visitation.

Serum affords a temporary protection to individual animals. By two or more injections it is possible to tide the animals over the time during which the disease is prevalent. Where Anthrax appears n an epidemic form among one or more herds or in a stable, the application of serum injections not only affords an immediate protection to all the animals exposed to infection, but it stops short the spread of the disease and gives facilities for carrying out thorough measures of disinfection.

Vaccination against Anthrax cannot be recommended for practice in India. The action of the vaccine is irregular and not infrequently a considerable percentage of deaths result after vaccination, which form fresh foci of infection.

Sero-vaccination, which is a combined injection of serum and virus at the same time but on different parts of the body, is attended with less risk than the vaccine and confers a durable immunity. Among a valuable herd of cattle or in a stable where the owner is willing to accept the risk of a few lossses, the sero-vaccination method is the most satisfactory method of protecting against anthrax.

Hæmorrhagic Septicæmia. After Rinderpest, Hæmorrhagic Septicæmia accounts for the largest losses among cattle in India. This disease is prevalent throughout the country. Outbreaks generally occur sporadically during and after the rains and seldom assume an epidemic form. In dealing with this disease, serum is used, as in anthrax, to protect animals exposed to infection during the period the disease is prevalent, or until, where possible, measures of disinfection can be carried out and the source of infection removed.

A dead vaccine has been prepared which gives an immunity of about six weeks. This vaccine is of considerable advantage in localities where the disease is seasonally prevalent. Cattle are inoculated and put in a state of protection before the disease has actually appeared among them.

Sero-vaccination is also a safe and efficient method of immunising animals against this disease, but ought not to be practised in areas free from infection and only when owners do not object if a small percentage of loss follows inoculation.

Black-quarter. Charbon symptomatique or Black-quarter is a disease which is more or less confined to certain areas and appears seasonally during the rains, and seldom assumes epidemic form. A serum for this disease has been prepared, but it is not of much practical value as the protection afforded is only of about ten days duration.

Vaccination has proved to be the most satisfactory method of combating this disease. The vaccine is composed of the living but attenuated organisms and confers an active immunity which persists for several months. Vaccination is carried out each year among animals in infected districts immediately before the season when the disease makes its appearance. The vaccine is so attenuated that few accidents are traceable to its use.

Strangles. As India is not to any great extent a horse breeding country, strangles require very little intervention except in the Government Remount Depot. A dead vaccine and a serum has been prepared and has been used with advantage among remounts.

Glanders. Glanders is very prevalent throughout India, and mallein is in all suspected cases used for diagnostic purposes.

Tuberculosis. Tuberculosis is not a common disease of stock in India. Tuberculin is consequently not much in demand.

Tetanus. Tetanus is widespread in the soil, but cases of tetanus in horses are not very numerous and the tetanus antitoxin is only occasionally required.

Surra. A successful method of curing surra in horses by means of arsenic and atoxyl has been worked out, and instructions regarding the doses and methods of administration of arsenic and atoxyl are issued from the laboratory.

The following points should be borne in mind :—

(1) No serum can confer anything more than a temporary protection against its specific disease. The periods for which serums protect vary in different diseases from two weeks to not more than six weeks.

(2) In using serum the object aimed at is not so much the preservation of each animal treated, as the control of the epidemic and the prevention of the spread of the infection.

(3) No serum or vaccine will protect every animal treated. Many individuals cannot be immunised either on account of an intense susceptibility, or more frequently from the existence of an intercurrent disease.

(4) The duration of the immunity afforded by a serum or vaccine is not in every instance exactly the same. Some animals are protected for a shorter time, others for a period longer than the average.

(5) Serum gives an immediate protection. With vaccines the immunity is not established for a few days after the injection. Dead vaccines give a protection for a somewhat longer period than serums. Living vaccines produce an active immunity of long duration (several months to one or two years) but their use is attended with the risk of a small percentage of deaths due to vaccination.

Chapter V. enumerates the serum and vaccines prepared at Muktesar, some details of their preparation and methods of issue, with copies of "instruction" issued with them. It occupies 23 pages. We have

space here only for one section—Anti-Rinderpest Serum.

"This serum was first prepared by Kolle and Turner in South Africa, and used there with success in 1898.

The following year it was manufactured at Muktesar and its use introduced into India.

The serum is prepared from cattle which have been first immunised against rinderpest and further treated with one or more injections of virus. The virus is obtained from animals suffering from the disease. Lingard by a large series of experiments extending over three years, worked out an economical method of preparing a serum of high potency.

In the early operations with serum much opposition was experienced from the owners of cattle, who regarded the interference with suspicion and refused to allow their animals to be treated. After a few years, the successful results overcame this opposition, and the demand for this serum increased at such a pace that from 1907 to 1910, the maximum output (of about 500,000 doses) was insufficient to meet the orders for serum. In 1910 improved methods of preparing this serum were discovered, by the application of which in the following year over 1,000,000 doses were manufactured, at the same cost as was previously necessary for half this amount.

The serum was, up to 1910, issued free of cost to the Civil Veterinary Department in each Province, but in this year a charge of two annas per dose was imposed, and surplus serum not required by the Veterinary Department was made available for purchase by Native States and other Governments, etc.

Each brew of serum which consists of from 50,000 to 100,000 doses is carefully tested, and the protective dose for susceptible cattle ascertained per 600 lbs. body weight.

All brews which show potency sufficient to protect, at a dose of 90 c.c., a susceptible animal of 600 lbs. body weight, are issued."

The description concludes with 33 pages of reproductions of photographs—portraits of Dr. Lingard and Major Holmes, and of Senr. Vety. Inspector Khan Sahib Wazir Mohamed, Head Clerk Pundit Krishna Nand, Accountant Rai Sahib Pundit Nitya Nand, Artist and Photographer Babu Duni Chand, 2nd Clerk Pundit Ram Datt—of the main buildings (two of which we reproduce) of Bacteriologists' and Chemists' workrooms, other workrooms and offices, and of several of the many bungalows, out laboratories, sheds, and other addenda which go to make up one of the best equipped and most useful laboratories we possess.

Annual Report (1912-13) of the Bengal Veterinary College, including the Reports of the Epizootic Diseases Department in Calcutta and its Vicinity and the Raymond Research Laboratory.

[Abstract].

Major A. Smith, the Principal was posted to Bengal on the 15th April and took over formal charge of the Bengal Veterinary College on the afternoon of the 4th June. He also held, in addition to his own duties, the charge of the Civil Veterinary Department, Bengal, from 22nd April to 27th October inclusive.

Veterinary Instruction. The number of students on the College rolls at the beginning of the session was 107, 99 at the close of the session. They consisted of 72 Hindus, 22 Muhammadans, 3 Christians, and 2 Buddhists.

The following table shows the results of the examinations :—

	Opening.	Close.	Examined.	Passed.
Class A	36	29	29	22
„ B	30	30	29	23
„ C	41	40	40	27
Total	107	99	98	72

Five men from the Supplies and Transport Department were trained in nursing and dressing, and two men from Monghyr, and one from Assam were trained in horse shoeing.

Treatment of Disease. During the year under report 2,428 patients were treated, showing an increase of 244, and 1,892 operations were performed, against 1,881 of last year. The number of cruelty to animal cases sent by the trying Magistrates was 245 which in comparison with 14,932 prosecutions appears very small.

A new hospital for dogs has been erected and certain low portions of the compound of the Bengal Veterinary College have been raised. A new building for the office and quarters for the Principal are highly necessary.

The very willing assistance of the staff has been much appreciated.

Epizootic Diseases Department.

The total number of horses admitted into the Contagious Diseases Hospital was 29 including the 2 animals that were under observation at the close of the previous year. Of these, 5 were destroyed for glanders, 1 died from glanders, 1 died from organic complaint, 21 were discharged as free from glanders, and 1 remained under observation.

Rinderpest was prevalent in Calcutta and its Suburbs 1,698 cattle were inoculated with anti-rinderpest serum. A sum of Rs. 522-14 was realised on account of the serum used and credited to Government.

Foot-and-mouth disease also appeared in several parts of the glanders area and also among the bullocks of the Government Transport Lines at Dum Dum and Hastings.

Eighty-four cases of suspected rabies from Calcutta and elsewhere were examined, and sixty of them proved to be suffering from the disease.

Raymond Research Laboratory.

During the year under report some up-to-date electrical apparatus for special experiments was purchased.

Pathological specimens, smears, dabs, etc., were received from the Civil Veterinary Departments of Bengal, Bihar-Orissa, and Assam, Army Remount Department and other sources which on examination showed among others the causative organisms of anthrax, blackquarter, hæmorrhagic septicæmia, tuberculosis, piroplasmosis, trypanosomosis, filariasis, strangles, rabies, parasitic mange, etc. Autopsies were made on carcases received from Calcutta and Bengal Police, Zoological Garden, Calcutta Corporation, General Post Office and private persons. The lesions were demonstrated to the senior students. The senior assistant, Mr. S. N. Mitra, had to give expert evidence in many cases. In the course of post-mortem examinations a collection of some interesting parasites has been made which will be sent to Europe shortly for identification.

The British Commission on Foot-and-Mouth Disease and Colonel Sutherland, I.M.S., the serologist, were supplied with a large amount of material for their work. At the request of Dr. Percival Mackie, I.M.S., who has been working under the Indian Research Fund on kala-azar, a large number of spleen smears of dogs were examined with a view to determine their infection by leishmaniasis.

I am glad to report that a cure was effected in a naturally contracted case of equine surra by following the method suggested by the Imperial Bacteriologist. This is the first case of cure reported in Bengal.

CIVIL VETERINARY DEPARTMENT, BENGAL, 1912-13.

[ABSTRACT.]

The necessary changes in consequence of the reconstitution of the territories, though declared in the previous year, practically took effect in the year under report, the completion of which took some time to attain a definite shape so to speak.

I held charge of this department from 28th October, 1912, when on my arrival from Madras I took over from Major A. Smith, F.R.C.V.S., Principal, Bengal Veterinary College. During the period of five months in which I have held charge I was on tour for 61 days, travelled 5,733 miles by rail, 907 by steamer, and 279 by road; inspected 16 veterinary assistants, Kalimpong Homes Farm, and Agriculture Farm, Dacca; provisionally selected seven sites for Dacca new veterinary hospital; and attended two outbreaks of glanders at Burdwan and Barisal.

Contagious Diseases. The numbers of deaths reported of equines and bovines were 373 and 7,637 respectively against 248 and 8,522 of the previous year. The decrease noticed is due, partly to decrease in disease this year, and partly to the correct records kept by the thana officers and their more prompt notification to this department, and consequent earlier attendance of veterinary assistants, though in the latter there is still much to be desired.

In some cases it came to my notice that the police failed to report at all, and in others the disease had subsided before this department got the report.

There were 260 cases of deaths from glanders. Of these, 240 cases occurred at the Sodepur-Pinjrapole alone, and the remainder in six other districts. To avoid difficulties in future, steps are being taken to extend the provisions of the Glanders and Farcy Act throughout the newly constituted Presidency, as was done in the case of the old province of Bengal. Rupees 282 was awarded as compensation for destruction of horses under the Act.

Only ten cases of deaths are reported from anthrax against two of the previous year. At Mymensingh town only, it took something like an epidemic form, causing seven deaths among equines and six among bovines. The diagnosis was confirmed by bacteriological examination, and prompt preventive inoculation was performed, to check the spread of the disease.

There was only one death under the head of surra and dourine. There were 75 deaths from other diseases at the Sodepur-Pinjrapole and 20 at Mymensingh, but no details are available.

The most common contagious diseases in cattle are rinderpest, foot-and-mouth, hæmorrhagic septicæmia, blackquarter and anthrax, and the total number of deaths reported from all these was 7,637 against 8,522 of the previous year.

The decrease noticed is due apparently to the disease being less prevalent in some districts, *i.e.* Mymensingh, Chittagong, Rangpur, and Noakhali.

As usual, foot-and-mouth disease caused a very few deaths, the total number being 433 against 497 of the previous year.

Hæmorrhagic septicæmia broke out rather badly in the districts of Faridpur, Khulna, and Mymensingh, where 146, 348 and 202 animals were reported to have succumbed to it.

Preventive Inoculation. One hundred and forty-six outbreaks of rinderpest, 23 of hæmorrhagic septicæmia, and three of anthrax at which inoculation could be undertaken were reported, and the total number of cattle inoculated was 21,705, viz., rinderpest 19,113, hæmorrhagic septicæmia 2,407, anthrax 185.

The death-rate among the inoculated was practically nothing, being 46 in all.

In some districts the villages are still opposed to inoculation, and the department has considerable trouble in overcoming their prejudices. In some cases the co-operation of even the literate classes is also unobtainable. It is hoped that every one will take interest in these matters and help the department by reporting outbreaks whenever they occur. Co-operation of the officers of other departments of Government, such as the Co-operative Credit Society, Settlement, Forest and Excise, who are generally required to tour in the villages, is also necessary to deal with outbreaks. They should report to this department the existence of cattle diseases, and impress on the raiyats the benefit of inoculation.

Under the recent orders of Government Rs. 5,251-12 was paid to the Imperial Bacteriologist, Muktesar, on account of the cost of serum supplied to this province during the year. Of this, Rs. 876-12 was recovered from the District Boards in West Bengal, the cost of serum used in East Bengal districts being borne entirely by Government. It is proposed that Government should bear the expense for the whole of the new province.

Veterinary Assistants. During the year there were 37 itinerating veterinary assistants working in the province, and 11 stationary assistants placed in charge of dispensaries who made tours in the districts either at fixed periods or at the time of outbreaks. They visited 10,409 villages and treated 52,705 patients against 8,055 and 52,403 patients respectively of the previous year.

Hospitals and Dispensaries. The number of working hospitals and dispensaries during the year was 18. The dispensaries at Sodepur-Pihjrapole, Howrah and Cooch Behar are managed privately, and the others by local bodies. The total number of patients treated at the dispensaries was 22,106 against 17,289 of the previous year. Of these 4,921 were in and 17,185 out-patients.

BREEDING OPERATION.

The number of stud bulls at present serving in the various districts of the province is 37 the property of the Government, and 26 the property of Local bodies. These bulls are mostly kept by the local bodies at the headquarters station for the use of the town people generally, and by the Jail authorities for the jail cattle only. They are too few in number to be of any appreciable benefit to the public. Applications were received during the year for bulls, but could not be complied with for want of suitable animals.

No part of the province as now constituted is suitable for breeding purposes. The raiyats show very little interest in the selection of bulls, with the result that immature, debilitated and badly shaped animals are generally mated, and that a very large amount of in-breeding takes place.

In spite of our determined and continued efforts, practically very little progress in this direction has been effected. For some years Brahmini bulls from Bihar were supplied. But this practice of depriving certain districts of their good bulls, was not a commendable one and was objected to by the people. In districts in which bulls are stationed the inhabitants make very little use of them, and even when they do so, fail to benefit through ignorance, half-starving the cow and calf. Feeding alone will improve the local cattle considerably, but this point is difficult to drive home, as it

necessitates extra expenditure on the part of the owner with no appreciable result to be seen for a considerable time. The rise of price of agricultural stock is also responsible for a certain amount of deterioration, because people, instead of keeping good calves for bulls, castrate them.

To remedy these, and to really improve the breed, a dairy and breeding farm is being started experimentally in connection with the agricultural farm at Rangpur, and, if it proves a success, it is hoped the plan will be adopted in connection with other agricultural farms.

Horse and pony stallion. There was no horse or pony stallion in the province.

Subordinate Establishment. There were 5 Inspectors and 62 Veterinary assistants at the close of the year against 5 and 59 respectively of the previous year.

Staff Veterinary Assistants. Of the four Staff Veterinary Assistants sanctioned for the province, the services of one were placed under the disposal of the Director of Agriculture, Bengal, in connection with the cattle survey operation. Three only were therefore actually employed by this department. All these men have on the whole worked fairly well and have justified their appointments. I consider staff veterinary assistant a most useful section of the department. It acts as a training and sorting ground for possible inspectors. They are employed on various important duties, especially attending and helping veterinary assistants and inspectors with outbreaks of contagious diseases.

Reserve Veterinary Assistants. There were seven leave reserve originally sanctioned for Bengal. Of these, five were taken to Bihar on the reconstitution of the provinces, leaving two only for the two divisions of West Bengal, and one was received from East Bengal and Assam. These three men were, however, found to be insufficient and disproportionate to the strength of the subordinate staff. Sanction has therefore been obtained during the current year for the appointment of three more men under this head. The work of all the reserve men employed during the year was satisfactory.

Veterinary Assistants. Of the 55 assistants employed, 18 were stationary and 37 itinerant. On the whole the assistants have worked fairly well. I wish they would all take keener interest in their work itself, and that I saw less tendency in some of them to do just enough to escape reprimand.

General remarks. In many districts there is urgent need for the employment of additional veterinary assistants, the number of men already posted being quite inadequate for the amount of work and the large area to be covered. In practically all cases where this is most neeessary the district boards have rejected the proposal to post extra men on the ground of lack of funds. There is no scarcity of men, as many more graduates pass out of the Bengal Veterinary College than employment can be found for. Thus it is possible to pick the best men in order of merit and general fitness for the posts vacant.

Cattle poisoning is still a very common practice and the cause of serious loss annually, and it seems practically impossible to detect the culprits. The attention of the district officers has been drawn to this matter.

Breeding and improvement of cattle in this province is particularly bad, and the result of attempts to remedy it most discouraging, owing to the absolute indifference of the owners to the condition of the cattle they have.

The people know literally nothing about breeding, and do not trouble to use the stud bulls where provided, nor feed the cow when often served, nor the calf when born; under such conditions the best cattle would degenerate to the present standard. Better than literature and lectures, perhaps small demonstration farms rearing Bengali cattle will drive home to them the improvement and consequent profit to be made out of care and feeding of cattle. Until the care of cattle is understood, the purchase and distribution of selected bulls will be productive of little or no result.

P. J. KERR, M.R.C.V.S., I.C.V.D.,
Supt., Civil Vety. Dept., Bengal.

The following notes occur in Resolution—No. 2706 T—R. of the Revenue Department:

In last year's resolution on the work of the Veterinary Department the Governor in Council noticed with satisfaction the excellent results achieved in the Raymond Research Laboratory, and His Excellency is glad to see that steady progress is still being maintained.

The report of the Civil Veterinary Department shows a further considerable decline in the mortality of bovines from contagious diseases. This is attributed to less actual disease and also to better reporting on the part of police officers, whereby the prompt and effective attendance of veterinary assistants was secured. This is satisfactory, but the system of reporting is still far from perfect, and the possibility of improving it has been under the consideration of Government during the year.

The Governor in Council is satisfied that the Director of Agriculture and the officers of the Veterinary Department are giving the vital question of the improvement of cattle breeding the attention it deserves, and His Excellency recognises that progress must inevitably be slow.

The Governor in Council desires to acknowledge his appreciation of the services of Major Smith, the Principal of the College, and of Mr. Kerr, the Superintendent of the Veterinary Department. The opinions expressed by these officers regarding the work of their subordinates have been duly noted.

By order of the Governor in Council,

H. F. SAMMAN,
Offg. Secretary to the Govt. of Bengal.
Darjeeling, 14th Oct., 1913.

Sterilized Milk: Bovine Tuberculosis.

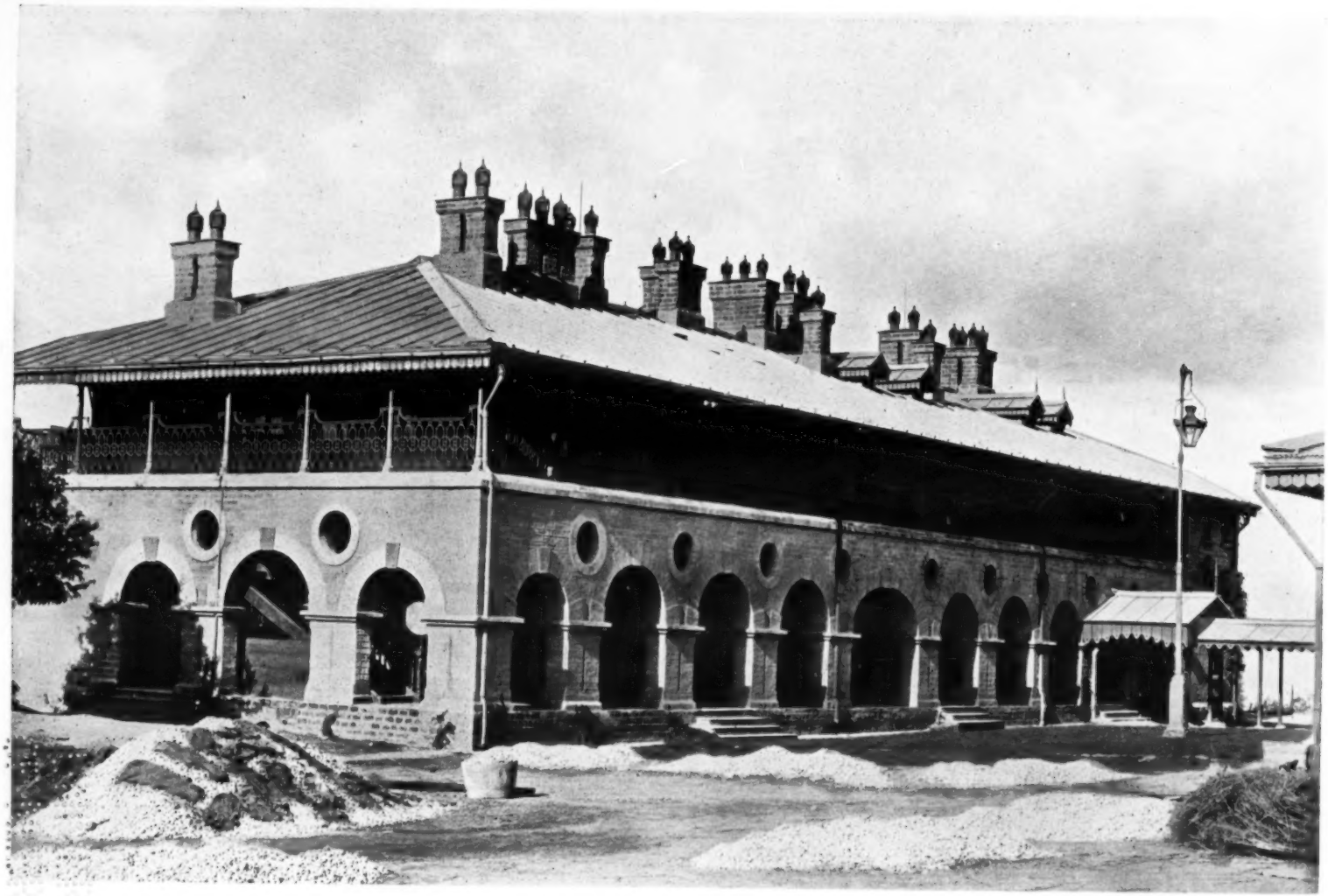
Mr. ROBERT MOND gave an address to a large body of Mid-Cheshire farmers, at Knutsford, on Feb 25th, in the course of which he said:—

"The report of the Inter-Departmental Committee on Physical Deterioration (1904) brought out the fact that the natural food of infants—human milk, was becoming a very scarce and rapidly diminishing commodity. The report continued that in these circumstances it is obvious that the question of the possible alternatives to breast feeding becomes of the greatest importance. They were informed by the highest authorities that modified cows' milk is by far the best.

Two years previous to the appointment of this committee we had started a small temporary hospital with the object of studying the scientific modification of cows' milk so as to provide the individual infant with a food meeting its physiological requirements. Much the best work had been done in this direction by Dr. Rotch, Professor of the Diseases of Children, Harvard University, and we therefore took his work as a starting point.

We had realised the urgent need of a hospital properly equipped for dealing with the treatment of babies suffering from malnutrition, and for the study of the factors involved in nutrition and malnutrition. In September, 1907, we entered into occupation of the Infants Hospital, Vincent Square, which was designed and built to meet the special requirements, and since then we have been able to treat over 15,000 babies. At the same time, under the able direction of Dr. Ralph

The Veterinary Record.



Main Building, South Front.

THE IMPERIAL BACTERIOLOGICAL LABORATORY, MUKTESAR, INDIA.
MAIN BUILDING, FROM THE NORTH.

Vincent in the Research Laboratory, we have succeeded in largely increasing our knowledge in regard to the chemical and bacteriological changes undergone by milk in the alimentary canal of the infant.

For the last five years the milk for the hospital has been supplied from my own farm. I think it may interest you if I give you a short account of the steps taken to obtain a clean milk for infants.

When I entered in possession of the farm I found two well-built cow-byres, each capable of holding 16 cows, provided with wooden mangers and posts, the tiled roof and resting on hay; rough walls, irregular shaped trusses for holding up the roof and a partly cemented and partly cobbled floor, with no windows or ventilation, except the doors at the ends, and each connected with open yards. They were erected a century ago and were in a good state of repair.

For the production of a reasonably clean article it was essential that the place where the cows were milked should be capable of being kept scrupulously clean, and certainly should not be the place where the cows are housed during the winter months. I therefore decided to cover in the open yard by the cheapest method available, and to use the byres only for feeding and milking. The wood-work of the troughs and posts was replaced by earthenware and sherardized iron. The brick walls were covered with cement. The roof was boarded with match boarding which was coated with a solution of Stockholm tar and turpentine. Windows, ventilation, and a good water supply were provided. As it was found that the cows dragged in straw from the open yards, a cobbled foot scraper, surrounded with semi-circular iron railings, was added, and this prevented the cows from crowding each other when entering the milking shed. When a cow is found to be annoying the others in the open yard she is tied up.

The close relationship between the hospital and the farm enables us to study the effects on the milk supplied to delicate infants of some of the food stuffs given to the cows, and we have found that it is advisable to feed these cows with only from 5 to 10 lbs. of mangels, and that substitutes, like oil cake and brewery grains, must be carefully excluded, as they introduce irritant bodies into the milk, which affect the digestion of the babies. Experiments are still being carried on in this direction.

The milk from each cow is milked into a narrow-top milk-pail with a lid which is sterilised before use. These cans have been carefully adjusted to be all of the same weight, so as to facilitate the weighing of the milk each morning and evening.

The average milk of the morning and evening's milking is daily tested for butter fat, and once a fortnight the milk of each individual cow is tested both in the morning and evening. This enables us to eliminate all those cows which fall short in their total milk production, and we replace any shortage in cows by purchasing heavy milking stock. By this means I was enabled to produce last year about 850 gallons per cow.

As regards the cows themselves, of which I have 30 in milk, I am gradually endeavouring to build up a herd of pedigree dairy shorthorns. My first bull I got from Lord Rothschild's herd at Tring, and I am now using his son from a pedigree cow with Bates strain, and a young bull from the celebrated herd of Mr. Sanday.

Any cow, which for any reason is suspected of being in a bad state of health is removed to one of the isolation wards. These wards were originally oast houses, which are so common in Kent, and they have been altered to meet their present purpose. We find these also suitable for calving.

Before milking, the cows are carefully groomed and the hind quarters and udders are washed in order to prevent stray hairs, dirt and dust falling into the milk. The whole building, including the roof, is also sprayed. The men wear light overalls and a cap, which are changed and washed twice a week and are sterilised in a steam cupboard before each milking. The men are provided with a changing room (where they put on their white overalls) which is fitted with a hot and cold water supply, so that they can thoroughly clean their hands. They are examined once a week by the doctor so as to ensure that they should have no chapped or sore hands, and that the health of themselves or their family should not be prejudicial to the milk.

The milk is brought to the dairy, which also has cement walls and a match boarded ceiling. The cream separators and the cooling apparatus are so arranged that both ordinary water and brine from the refrigerating plant can be used for chilling the milk. After trying various types of cream separators I have adopted Mey's as the most satisfactory for my purpose.

Opening out of the dairy there is a room constructed of tongued and grooved 2in. timber, in which all vessels, after being properly washed in the dairy, are sterilised under steam pressure, whilst the large valve placed on the top of this chamber, which can be opened from the outside, allows the steam to blow off rapidly, and the vessels inside are left hot and dry.

This chamber I found absolutely essential, as the ordinary cleaning of vessels with hot water, owing to its gradual cooling, fostered the growth of bacilli detrimental to milk as a result of the exposure of these vessels to air.

A small refrigerating plant worked on the carbonic acid principle, supplied by Messrs. West and Benyon, is used for chilling the milk, whilst a Cochrane steam boiler, as used on trawlers, supplies the large volume of high-pressure steam for sterilising purposes.

To facilitate the work of the farm the cooling is done during the afternoon and the milk is stored in a churn, provided with an air wall, which is placed in a refrigerating chamber, so as to be ready to be sent up to the hospital next morning.

To ensure the purity of the milk, samples are sent down to my private laboratory. These samples are taken in sterilised bottles. Directly they are received in the laboratory they are placed in sterilised flasks. These flasks are then placed in the incubator, which is kept at a temperature of 68° F. The most essential point of the incubation is the time that it takes a sample of milk to curdle, and not only to curdle but what is the nature of the curd which has been produced. These are points which are most essential, because many samples may curdle in 48 hours and produce a good curd, whilst others may take 78 hours to produce—and produce what is called a gaseous curd. This we regard as a very bad sample of milk, although it may have taken longer to curdle. By the production of this gaseous curd we at once assume that there was some foreign matter come into the milk through unforeseen circumstances, and on these results obtained we inform the bailiff, and he makes then a minute investigation of the herd after washing and during the time of milking in order to eliminate these defects.

This short description of what has been found necessary to ensure a supply of milk of the highest quality, suitable for delicate infants, ought to make it clear that the necessary alterations and installations are not beyond the means of those of you who obtain the milk of a fair number of cows. In cases where the milk can be delivered within a few hours of milking, say three to four, to the customer, the necessity of cooling is not so great. I have found on referring to the practices of the Copenhagen Milk Supply Company (which is daily supplying some 6000 gallons to the town of Copenhagen, and since its foundation some 24 years ago by Dr. Busck has steadily grown and has adopted practices as

to cooling and feeding similar to those which I have introduced on my farm) that during this period it has succeeded in retailing milk at

10d. per gallon the sealed can,
11½d. „ „ in bottles for general purposes,
13½d. „ „ children's milk cooled,

and subsequently

Infant's milk at 16d. per gallon,

besides paying 5% dividend. This proves that with a suitably organised agency the supply of good pure chilled milk is practically attainable.

The score-card for the production of pure milk which has been prepared in the Department of Dairy Industry, College of Agriculture, Cornell University, by Prof. Raymond Pearson, is in extended use in the United States, and I commend this to your attention.

In my opinion, differentiation should be made between milk specially provided for babies and invalids and the ordinary milk of commerce. Where milk is the sole or chief article of consumption it is of the utmost importance that it should be treated with the greatest possible precaution. It is to this type of milk, produced under careful supervision of the board of veterinary and medical advisers, that the term "certified milk" should be applied, and I see no reason why a legitimately higher price should not be charged for this milk, covering the extra expense incurred in its production.

A factor on which I lay the greatest importance is the installation of efficient refrigerating machinery for cooling the milk and keeping it below 40° F. where it is not possible to supply the milk to the customer within a comparatively few hours after milking. At the certified milk farms or at the creameries of the co-operative dairy associations in America, Germany, and Denmark a sufficient stock of natural ice is kept, or a refrigerating plant is installed. Following the valuable suggestion made to me by Prof. Geddes, Edinburgh, I should like to call milk thus treated "chilled milk" to distinguish it from milk which has been insufficiently cooled by ordinary water cooling.

The keeping qualities of milk thus cooled, either at the farm or at a central depot, if it is within easy reach of the farm, are greatly increased, and the fact that milk thus cooled can be stored for several days should balance the inequalities of deliveries and help to pay for the extra expense involved.

Cows' milk as an admirable raw material for the provision of food for babies. You all know that cows' milk changes its composition from the time of calving. These changes are consonant with the requirements of the calf for whose benefit the milk is produced. Similar changes take place in human milk, and the problem of the physician or mother or nurse is how to convert the average cows' milk into that particular type of milk which will best agree with the individual infant. The following table shows the composition of human milk and that of cows' milk :—

	Human	Cow
Fat	4·00	4·00
Milk sugar	7·00	4·50
Whey-proteins	1·00	1·00
Caseinogen	0·50	2·75
Water	87·25	87·00

The excess of curd in cows' milk, and the deficiency of milk sugar are the factors that have to be dealt with. A method was devised in the research laboratory some time ago by Dr. Ralph Vincent which has been extensively used in the out-patient department of the Hospital. It is known as the "fat-whey" method. Milk is treated with Rennet, but all the time the milk is stirred so as to prevent the curd, when it forms, entangling the fat globules within it. The curd is then pressed down to a lump at the bottom of the jug. By this means we have obtained a fluid which contains all the ingredients of cows' milk except the curd. The "fat-whey" is then heated to 150° F. in order to kill the rennet, and, after it is cooled, a suitable proportion of whole milk is added. The whole milk is not heated at all.

Where you have to deal with very delicate infants, such as those in the hospital, great refinements are required. These are dealt with in the milk laboratory where modifications are provided. For further details I must refer you to Dr. Vincent's "Nutrition of the Infant." By the use of this method the blind fumbling from one inadequate food to another, that so unfortunately prevails to-day, is avoided. Science takes the place of empiricism.

As milk is a very rich food it is not surprising to find that it contains a very large number of bacteria. Some of these reach the milk from the teats; others are introduced by manure, dust, or by water with which the milk may come in contact. For our purpose we can roughly group the bacteria into those which form acid by acting on the milk sugar and those which putrefy the milk by acting on the proteins.

As long as the acid-forming bacteria are active the putrefying bacilli are inert, a fact which has long been made use of in the preservation of boiled foods, such as pickles. All bacteria in milk are destroyed by boiling, but the spores of the putrefactive bacilli are not destroyed. These spores form bacilli again in periods varying from 12 to 24 hours under suitable conditions; but as the acid-forming bacilli do not form spores, they are destroyed and consequently their protective action is lost. The investigations carried out at the Infants Hospital have shown that boiled milk is responsible for the most dangerous forms of infantile diarrhœa.

It is also clear that milk is liable to contamination by specific pathogenic or disease-producing organisms, such as the typhoid and diphtheria bacilli. It appears that the tubercle bacillus is usually not found in milk unless the udder of the cow is tuberculous, and here let me state my conviction that a cow suffering from a diseased udder, whatever the cause of the disease may be, should be absolutely excluded. Her milk should be prohibited as unfit for human consumption. The tuberculin test, however, is a very different thing.

Tubercular infection is, both in cattle and in human beings, extremely common. From a statement in *Le Matin* I learn that at a recent examination in the French Army two-thirds of all the recruits were found to react to the tuberculin test. Pathologists who have had an opportunity of examining thousands of cases find that the number of those who have not contracted the infection at some time of their life is extremely few.

Agricultural statistics have proved that 20 to 25 per cent. of the cattle in the different countries of Europe are reacting at the time of the test. It is only amongst babies that tuberculosis is of rare occurrence, and carefully compiled statistics prove that the number of those contracting the infection steadily increases up to about ten years of age. Tuberculosis is a highly infectious disease, and is chiefly communicable through the breathing organs by the inhalation of tubercular dust. For instance, in the slums of New York they found that threequarters of all the children in the same flat with a tuberculous patient reacted. Whether bovine tuberculosis is communicable to human beings is a very debatable point. The opportunities of infection are so many and the instances where hundreds of children have for years been fed on milk from tuberculous cows without any marked effect is well known. With a mixed supply the danger of the conveyance of tuberculosis by means of milk must be almost infinitesimal. This has been tacitly acknowledged by all the medical authorities of the world, for none of them advise the boiling of butter.

In connection with the subject, I have attempted within the last two years to study the action of repeated and increased doses of tuberculin on cows which reacted. In two cases where the cows were finally slaughtered the disease was in a very advanced stage, and Mr. Pugh, the veterinary surgeon, considered that the tuberculin had accelerated the progress of the disease. In the rest strikingly beneficial results have been achieved; for the cows are now well, and do not react to the test although they have been frequently tested. But I desire to accumulate further experience before feeling myself justified in drawing definite conclusions from the results obtained. It may interest you to learn that in none of these cows was it possible to find tubercle bacilli in the milk; although in the case of the two cows which were slaughtered there was scarcely an internal organ which was not extensively involved, the udders and their lymphatic glands were perfectly healthy.

In reply to a question Mr. Mond said that in France, out of every 1000, 660 reacted to the tuberculin test, whereas only nine out of every 1000 showed sufficient clinical signs of the disease as to make it worth while to take active steps to segregate them or put them under treatment. In Germany it had been found that of the people in sanatoria 70 per cent. of the cases could be cured. In the case of England the percentage was also a very high one. And he had no doubt that when they got their statistics in a satisfactory manner they would find that the number of cows that reacted to the tuberculin test was very small in relation to those which did not. It might be higher, but he would be surprised if more than five per cent. were suffering from anything which might be decently called tuberculosis. If a cow reacted to the tuberculin test he strongly advised it being watched and put on a strengthened diet so as to fortify it against the disease, and unless emaciation or other unfavourable symptoms supervene, the animal was quite as safe as any they could put their hands on.

Mr. Hailwood asked: Should the milk from an infected animal be sterilised, or put through the refrigerator? Which was the safer?

Mr. Mond said it was impossible for the baby to get a large quantity of the valuable foodstuffs in milk from sterilised milk, and consequently there was bad bone structure and other things, including the condition known as pigeon-chested, undeveloped lungs, and a consequential restriction of the flow of blood; and when the baby, the child, or the grown up walked down the street and received into the lungs a nice piece of tuberculous dust that speedily grew, and then they had the regulation tuberculous patient in the regulation sanatorium under the regulation conditions. The whole thing worked out like clock-work, and consequently his advise was not to sterilise. As evidence of the fact that a tuberculous herd of cattle did not give tuberculosis to those who drank the milk he must refer to the special herd of cattle which provided the richest families in New York with milk, which was drunk in large quantities by the children. When the tuberculin test was applied 45 per cent. of the cattle was found tuberculous and slaughtered. The doctors who had been treating the children formed a committee and carefully examined the hundreds of children who had been having the milk regularly, and of the lot there was only one girl of thirteen who showed signs of tuberculosis, and no one knew where she had got it from.

He would readily admit that if he fed a baby with milk from one or two particular cows, one of which was highly tuberculous, and continually gave the child doses, it might be possible for it to receive the infection. But unless the child had been consistently fed with milk from a cow suffering from tuberculosis of the udder, infection was rare.

In answer to Sir Kenneth Crossley, Mr. Mond said when he got cows at the dairy show they reacted, but that did not trouble him, and he would have no compunction in sending them to the sale yard.

In reply to Dr. Picton:—He knew of no source in England where he could buy stock which would be eugenically resistent to tuberculosis.

In answer to Mr. Hailwood:—Boiling milk, or even Pasteurising, was responsible for the killing of a large number of babies. Of course they must not give a child cold milk so as to give it a cold, but they could bring it up to the temperature of the human body.

Mr. Speakman: A great many of the things suggested by Mr. Mond could possibly be carried out by the large farmer, but very difficult for the small farmer and the smallholder, and he asked what Mr. Mond suggested to achieve the result.

Mr. Mond suggested co-operation. "In every other country, and in the most outlandish place, the principle of the co-operative system was in practice. In England there were sixteen co-operative credit banks dragging out a most miserable existence. With the co-operative system they could do everything, and without it they could do nothing at all

Mr. W. Clarkson. They were told to-day that it would be well to have the cows tested every two or three months. When Sir John M'Fadyean was with them he said that if they had their cows tested and found that they were clear of tuberculosis, they would not have a tuberculous cow as long as they lived if they did not introduce one into the stock. He was with Mr. Mond in the opinion that if they had their cows tested to-morrow they would not be sure that they would be free at Christmas.

As to co-operation amongst farmers and smallholders, farmers had to milk twice a day, they had to look after the crops, and had to meet the agents twice a year (Laughter), whether there was co-operation or not. He would like to know how farmers were to manage who got up at five o'clock and had forty cows to milk and to get it to the station, if they had to wash and groom the cows belore milking, as suggested by Mr. Mond. Especially when they remembered that Mr. Lloyd George was to introduce a Bill whereby labourers need not commence until seven o'clock. And yet people would want their milk at 7.30.

Mr. J. Sadler would like Mr. Mond to give his opinion as to the milk of a cow which was admittedly tuberculous, but which had not tuberculous udder. Was their any risk or danger either to children or anyone else from the consumption of such milk?

Mr. Mond said that highly tuberculous cows like the two he had killed, and which did not have tuberculous udders, produced perfectly safe milk, but the milk required watching because they did not know when the udder would become tuberculous. Tuberculous udder, except in a few cases, seemed to be the last phase of tuberculosis. As long as the udder was not tuberculous the milk was as good as any other milk.

In response to other questions, Mr. Mond stated that out of the cows which reacted to the tuberculin test there were only about one or two per cent. which really had tuberculosis. The tuberculin reactions did not necessarily mean that the cow was tuberculous.

Mr. Peter Mee inquired if farmers ran the risk of spreading the disease by placing bone manure or bone powder on the land. Mr. Mond said if the bones were boiled there there was no danger as tuberculosis bacilli were absolutely destroyed in an excessive temperature.

Mr. Farish asked if it was possible for tuberculosis to be transmitted from the cow to the calf. Mr. Mond urged that tuberculosis was a highly infectious disease and consequently a tuberculous cow was a very great danger to the rest of the stock.

Mr. Burgess asked if a calf could be born with the disease. Mr. Mond said it was unlikely unless there

was present a tuberculous uterus, but a calf might contract the disease in the first three or four hours of life.

The Chairman: Because a cow reacted to the tuberculin test it did not necessarily mean that the cow had the disease. [Mr. Mond: Exactly]. The tuberculin test was not reliable, and always went against the seller.

Horse Failing to Lie in Stall.

In the Perth Sheriff Court, Sheriff Sym has issued his decision in an action by Charles Taylor, coal merchant, Methven, against Alexander Macdonald, Dalquiech, Milnathort, for £15 5s., being loss sustained by the pursuer in respect that on 6th October, 1913, he purchased from the defender at the price of £26 at Macdonald, Fraser and Co's. sale, Perth, a brown horse, seven years old, warranted in all farm work, and free from vice. The said horse, it was averred, was disconform to the warranty and the conditions of sale in respect that it was affected in its wind and failed to lie down in the stall. The horse was sold by consent of both parties at Perth on the 7th November, and realised £13.

The Sheriff in granting absolvitor, with expenses, in favour of the defender, states: The horse which is the subject of this case was sold under this warranty, namely, "Warranted in all farm work and free from vice," and it must be taken along with this fact that the conditions of sale provide "Unless a special warranty is given as to soundness, buyers will be held as satisfying themselves in all respects as to soundness in lithe and limb. This, however, shall not be held as applying to any radical defect in constitution or wind which may not be visible, but which unfits the animals for the purpose for which it is sold." The buyer states that the horse was not according to this warranty in respect, first, that he had a vice. The alleged vice is that he did not lie down in his stable at night, and it is maintained that if a horse bought at this auction does not lie down during the three days which the buyer has in which to give notice, he may be rejected as having a vice. It is often the case that if a horse is of a nervous character, or suffers from any slight illness such as cold, he may not lie down at first in a new place. My view as to this fault of not lying down is just what is expressed in *Oliphant on Horses*, on page 96 of the 4th edition. "It occasionally happens that a horse will seldom or never lie down in the stable, but sometimes continues in apparent good health and fitness, and works well; but generally his legs swell, or he becomes fatigued sooner than other horses. It is a bad habit, and one decidedly injurious to his health, and so tending to impair his usefulness. It is a vice." It is very difficult to apply this to a three days' warranty. I think the truth about this horse is that he does lie down, but that for a time about the time of the sale he did not lie down in his new surroundings when he had a cold and was put to a kind of work which involved a great deal of strain. The chief difficulty I have had on this point is that after he was sent to the mart of Macdonald and Fraser he did not lie down for some time. On the whole I cannot affirm that he can be rejected for a vice, and I notice that there is no evidence at all that he suffers in appearance or health from not lying down for a time. The other matter refers to the horse's wind. I think if he had been warranted sound that I could not have said that he was a sound horse at the time of sale because there was a temporary unsoundness at all events from cold. He ought to have been returned. That, however, is not the question. It is stated he suffered from a radical defect in wind, not visible, but unfitting him for the purpose for which he was sold. I do not doubt that his wind was affected at the time he was examined by Mr. Reynard and a man from Macdonald and Fraser, but I attribute that to the cold which the pursuer's man says that he had somewhat severely when in the pursuer's stable. He is not a roarer, and I scarcely see how that comes into the case. If there be some affection of wind which could not be readily observed at the time of sale, I think it must be very slight, for there is much evidence entirely favourable in his health in all respects. I cannot affirm that this horse does not come up to the warranty which I have quoted. In this view it becomes unnecessary to consider the defence that this horse was retained by the pursuer and worked after he had been definitely rejected. Pursuer's agent explained his summons on this head, and I assume that he did so successfully but give no opinion upon it. The first day's ploughing work that the horse did for the pursuer was certainly after he had rejected him, and I think his conduct in this respect was not prudent, but I do not require to decide on this view of the case. On the pursuer's side the case seemed to me quite honest, and his statement of his fault to the horse quite moderately put, but it is a horse which I think might be sold again with the warranty which he has, unless some change has passed upon him since. —*N.B.A.*

Meat Inspection.

For years past there has been widespread dissatisfaction with the methods of inspection of meat. It has been frequently complained that many of the inspectors have not the necessary qualifications and experience, that different standards are applied by the inspectors under the different local authorities, and that frequently meat which should be condemned is allowed to be sold, while much meat is condemned which, if properly cooked, is quite wholesome. In the result producers and consumers alike sustain loss. The Scottish Chamber of Agriculture and other agricultural bodies have repeatedly urged that the Local Government Board should take steps to improve matters, and especially that they should insist on a proper and more or less uniform system of inspection by competent officials. Though tardily, the Local Government Board are showing signs of awakening to the requirements of the matter. The first symptom of this was the recent appointment of Dr. Leighton as a Veterinary Medical Inspector to their staff, followed by their instruction to him to "conduct a full inquiry into the question of establishing a uniform system of standard of meat inspection for Scotland, and to present a report thereon." They have now invited the Scottish Chamber and other bodies to submit their views on the question, which we learn is likely to be done.

The Association of Veterinary Officers of Health have, however, indicated that it would be more satisfactory that a Commission consisting of Dr. Leighton, as representing the Local Government Board and the medical profession, a representative of the consumer, the butcher, the stockowner, and the veterinary profession should be appointed to make the proposed inquiry. It is more likely, however, that these separate interests will be invited to submit evidence.—*Scotsman.*

The Board of Control of Toronto announce that a plebiscite may be taken upon the question: "Are you in favour of the City engaging in the dead meat trade to supply retailers, and of raising 200,000 by an issue of debentures to carry on this business?" If the project should be favoured by the people, it is understood that the city will kill live stock at the new civic abattoir, and endeavour to compete with the private companies who now supply retailers.

DISEASES OF ANIMALS ACTS 1894 TO 1911, SUMMARY OF RETURNS.

Period		Anthrax.		Foot-and-Mouth Disease.		Glanders.†		Parasitic Mange.		Sheep Scab.	Swine Fever.	
		Out-breaks (a)	Animals.	Out-breaks (a)	Animals.	Out-breaks (b)	Animals.	Out-breaks (b)	Animals.	(b)	Out-breaks (a)	Slaughtered. *
GT. BRITAIN. Week ended Feb. 28		18	18	4	27	2	6	63	100	14	64	729
Corresponding week in	1913 ...	16	17			4	15	59	132	2	35	341
	1912 ...	23	23			7	14	94	190	8	49	545
	1911 ...	21	28			3	9			16	34	299
Total for 9 weeks, 1914		167	177	5	31	20	46	748	1426	116	487	4515
Corresponding period in	1913 ...	119	133			31	100	748	1636	91	302	3477
	1912 ...	229	257			30	60	1204	2902	122	532	6856
	1911 ...	199	225			42	164			250	307	3269

(a) Confirmed. (b) Reported by Local Authorities. † Counties affected, animals attacked: [Durham 2, London 3, Lanark 1.
Board of Agriculture and Fisheries, March 3, 1914

IRELAND. Week ended Feb. 28	...	...	...	...	...	...	Outbreaks 2	18	5	15
Corresponding Week in 1913 ...	...	...	...	...	...	...	1	6	1	18
1912 ...	...	...	...	...	...	...	3	9	6	22
1911 ...	...	...	...	...	...	...	1	10	3	22
Total for 9 weeks, 1914 ...	...	...	2	28	...	...	25	218	34	224
Corresponding period in 1913 ...	...	...	...	...	...	...	64	167	35	179
1912 ...	1	1	...	...	...	...	23	167	27	214
1911 ...	3	3	...	...	...	...	22	169	26	481

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, March 2, 1914
NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection

Plant Diseases—National Inspectors.

Speaking at the annual dinner of the Kent Farmers' Union at Maidstone, on Saturday night, 14th inst., Sir Sydney Olivier, Permanent Secretary of the Board of Agriculture, made a definite statement as to the policy the Board had decided to pursue in future under the Diseases of Plants and Pests Act. He said the system of having merely county inspectors was not satifactory.

It was proposed to strengthen the Board's inspectorate and deal with plant diseases in the same way as they dealt with diseases of animals. Probably twenty or thirty additional inspectors would be appointed in the course of the next year to cope with and stamp out outbreaks of plant disease wherever they might occur. This would be done without expense to the counties. —*Daily Telegraph.*

Medical Research under Insurance Act.

A Medical Research Committee to administer the funds made available under the National Insurance Act for the purposes of research has been constituted. Amongst the first members of the new body we note the name of Dr. William Bulloch, Bacteriologist to the London Hospital, and Professor of Bacteriology in the University of London.

An Advisory Council of Research is also constituted which includes the names of Dr. Sheridan Delépine, Sir John M'Fadyean, Sir Stewart Stockman, and Dr. G. Sims Woodhead.

It is laid down that the Medical Research Committee shall from time to time prepare schemes for research, including, if they think fit, schemes for inquiries and the collection and publication of information and statistics, and shall submit such schemes to the Chairman of the National Health Insurance Joint Committee for his approval. Before approving any scheme so submitted to him, the Chairman of the Joint Committee will consult the Advisory Council for Research.

Members of the Research Committee are to hold office for three years.

Foot-and-Mouth Disease.

The Irish Department of Agriculture on Sunday last issued a notice stating that three outbreaks of foot-and-mouth disease have been discovered in the County Cork—at Ballynacourty, near Kinsale, at Douglas, and at Ballynacrusha, near Queenstown. The Department has made the usual orders regarding the movements of stock in these districts.

The Cattle Market at Liverpool was closed on Monday owing to the outbreak of foot-and-mouth disease in two districts in that city. In an Everton shippon five out of ten animals were affected, while a considerable number of a herd of upwards of twenty cows in a Walton shippon were also discovered to be suffering.

Two suspected cases of foot-and-mouth disease are reported from Togher and Ballygarvan, both in Cork rural district, and quite near that city. All the infected areas are now patrolled by police. Owing to the closing down order the food supply of the city is seriously

threatened, and it was estimated that the quantity of meat at the disposal of the butchers would not last over Wednesday.

The existence of foot-and-mouth disease was confirmed on Wednesday, 4th inst., on premises near Conway, Carnarvonshire.

R.V.C., London v. R.V.C., Dublin.

This annual Rugby match between the colleges was played at Ballsbridge, Dublin, on Saturday, Feb. 21. After a close game London won by three points to *nil* —a penalty goal kicked by Bennett in the first half. Considerable interest was shown in this match, as the colleges were playing for a cup presented by Professor and Mrs. Wooldridge of London. Last year (the first of the competion) the match resulted in a draw, so that the London College is the first to possess the cup. The match was refereed by Mr. Louis Magee the famous Irish International. On Saturday evening the teams were entertained at a dinner at the Gresham Hotel and after that went to the Theatre Royal.

The following played for the respective teams :—

R.V.C. London.—Full-back : L. P. Pugh ; Three-quarters : S. C. Bennett, G. Barnett, H. D. Neave, L. Jeffrey ; Half-backs : W. Gibson, J. Coleman ; Forwards : G. H. Melck (captain), W. A. Macgregor, H. B. Williams, J. Barlow, E. C. Bowes, H. Edwards, E. V., Hunt, D. E. McRae.

R.V.C. Dublin.—Full-back : T. O'Brien (captain) ; Three-quarters : T. F. Donworth, Morris, Peatt, Doyle; Half-backs : J. Bell, E. M. Elligott ; Forwards ; L. Hilliard, J. Malone, C. Ryan, Mettam, Fennelly, Cunningham, Barry.

Personal.

GOLDING.—On Feb. 23rd at Old Cross, Hertford, the wife of Walter W. Golding, M.R.C.V.S., of a daughter.

Mr. R. J. HICKES, F.R.C.V.S., Market Weighton, Yorkshire, has been appointed a Justice of the Peace for the East Riding of Yorkshire."

Prof. J. PENBERTHY, Newnham ; Messrs. F. AULTON, Tutbury ; W. J. HATTON, Richmond ; R. RIMMER, Kendall ; and H. H. TRUMAN, March, acted as Veterinary Inspectors at the 35th Annual Shire Horse Show held recently in London.

Dr. R. T. LEIPER, Helminthologist of the London School of Tropical Medicine and Wandsworth Scholar, has left London for the East, with Surgeon E. L. Atkinson, R.N., and Mr. Cherry-Garrard, both of whom accompanied the Antarctic Expedition. The object of the expedition is to ascertain the mode of spread of trematode diseases of man, especially bilharziasis ; investigations will also be made into ankylostomiasis. Dr. Leiper, it will be remembered, contributed a paper at the Carnarvon meeting of the N.V.A. and quite recently an address with lantern demonstration at a meeting of the Central Society.

Prior to the discovery of Australia 130 years ago the British farmer had very little experience with the production of fine wools. In Australia, however, he found a soil and climate more suitable for the Spanish Merino than for the British Mutton breeds to which he had been accustomed in the United Kingdom. He introduced Spanish Merino to the Australian pastures, and by practical breeding he has in the course of a century built up not only the greatest flock of sheep possessed by any one country, but a flock which produces a fleece which tops the wool markets of the world. Australian wool is without equal anywhere.

ARMY VETERINARY SERVICE.

Extract from *London Gazette*.

WAR OFFICE, WHITEHALL, Feb. 20.

TERRITORIAL FORCE. ARMY VETERINARY CORPS.

A. J. Hines to be Lieut. Dated Jan. 6.

March 3.

SPECIAL RESERVE OF OFFICERS.
ARMY VETERINARY CORPS.

Supplementary to Regular Regiments or Corps.

Lieut. (on probation) D. H. Dimes is confirmed in his rank.

Whitehall, Feb. 19.

ORDER OF THE MEDJIDIEH.

The King has been pleased to give and grant unto Herbert Mason, Esq., M.R.C.V.S., Veterinary Inspector in the Department of Public Health at Cairo :

And unto

Duncan Silvestro Rabagliati, Esq., Veterinary Inspector in the Department of Public Health at Cairo, His Majesty's Royal licence and authority to wear the Insignia of the Fourth Class of the Imperial Ottoman Order of the Medjidieh, which decoration has been conferred on him by His Highness the Khedive of Egypt, authorised by His Imperial Majesty the Sultan of Turkey, in recognition of valuable services rendered by him.

INDIA OFFICE, March 3.

The King has approved of the promotion of the following officers of the Indian Army :—

* * * *

INDIAN CIVIL VETERINARY DEPARTMENT.

Major A. S. Trydell. Dated Jan. 30.

OBITUARY

H. W. LEECH, M.R.C.V.S., Worthing.
Graduated, Lond : May, 1891

DAVID R. SOWERBY, M.R.C.V.S., Anlaby Road, Hull.
Edin : April, 1871

Mr. Sowerby died on Feb. 26th, from diabetes. Aged 67 years.

GILBERT BONE, V.S., (retired) died on Feb. 15th, at 5 Market Street, Alton, Hants., from cardiac disease with bronchitis, at the age of 76 years.

Mrs. GAMGEE, widow of Professor John Gamgee, M.R.C.V.S., of Edinburgh, died on Thursday, February 19th, in her 90th year at Brook House, North Stoke, Wallingford, Berks. the residence of her nephew, Mr. Harold Hartley, in whose home she had passed the declining years of her life.

She was the daughter of Captain T. Hartley, 23rd Royal Welsh Fusiliers, who served under Wellington during his Irish administration, and afterwards went through the Peninsular War under him. Captain Hartley was severely wounded at Badajoz and was subsequently invalided home. Professor Gamgee was the well-known authority on veterinary matters and cattle plagues. It was largely through his exertions that the great plague, both here and in the United States in the 'seventies, was stamped out. Mrs. Gamgee accompanied him during his travels and had many stories to tell of adventures in the West 40 years ago She retained her faculties almost to the last.—*The Times.*

PARNELL.—On February 27th, at 15, Cromartie Road, Hornsey Rise, N., Catherine Victoria Parnell, widow of the late Charles Parnell, M.R.C.V.S., aged 83 years.

TWO PRE-ASEPTIC LAPAROTOMIES.

Dear Sir,

I was much interested with Professor Reynolds' lecture at Grantham on Hernia in the Dog, and his description of the antiseptic and aseptic methods of operation with a great number of details which I think will be very difficult to remember at the time. Certainly I think the aseptic method of operation is the best, but how seldom can that be carried out in a country practice.

I will here describe, for the amusement, and I also hope for the benefit of one or more of your numerous readers, how I operated on two cases of scrotal hernia—a Clydesdale colt and Clydesdale foal.

The colt was foaled with scrotal hernia of the near side; this got very large, and I was called in by the owner to try and reduce it. I threw the animal, then a few weeks old, manipulated the part and got the bowel nicely back into the abdomen, then I gathered the loose skin tightly up, put a skewer—not aseptic—through it, and tied a strong piece of string on the upper side of the skewer sufficient to stop circulation in the dependent skin. In about a fortnight the dead skin came off, and the colt looked much better for a little while; but gradually the skin stretched and the hernia was soon as bad as ever, so I tried the same method again, but without success. The owner, a farmer, then became tired of the colt; he did not like to see him although he cost ten guineas to get. He asked me if I would have him as a gift as he was determined to keep him no longer. I said "Certainly," and thanked him for the handsome present. I sent him to my brother's farm. In a short while the hernia became strangulated and the poor animal rolled about in agony all night; I was sent for, as they said the colt had colic. When I saw what was the matter I had the colt thrown and worked the part well with my hands, and got it nicely reduced. I decided then to operate somewhat after the manner of Professor Reynolds. I had mentioned the case to the late Mr. Chivas, of Corbridge, who asked me to let him come whenever I operated upon him, so I wrote to him, and arranged to have it done at once. I took him out to the farm, we threw the colt, Mr. Chivas chloroformed him (not with proper muzzle, for I am speaking now of 25 years ago). I first castrated the colt, then reduced the hernia, scraped the edges where the bowel came through, and was going to suture him up when my friend said, "Hunter, I have never had my hand in a living horse's inside like you have, let me put my hand inside of him." I said, "double up your shirt sleeves and wash your hand and arm in this antiseptic fluid, and you shall." He did so, and after putting his hand well in and over the bowels he said "Now, Hunter, he'll die." "Well," I said, "you are consoling."

I finished the operation, and in a short while he came out of the chloroform and was steadied into his box. My brother went to look at him before he went to bed, and in going round him the colt let out, but fortunately missed my brother, who told me about it next morning when I went to see the colt. I said, "after that Mr. Chivas will be wrong, and he won't die," and sure enough he made a first class recovery, and I sold him to a client 18 months after, for whom he did well.

My next attempt to operate was on the foal The farmer sent for me in a hurry, saying his foal, five days old, was very ill, so I went at once and saw it was a matter of life or death. I got a little clean warm water and poured a little carbolic acid amongst it, had the foal turned on to his back and held by two men, but gave no anæsthetic. I castrated the foal—he was the youngest I ever did castrate—returned the bowel, and sutured up the inguinal opening, and finished with a stitch or two in the scrotum. The poor thing was lifted on to its legs and made an uneventful recovery. This animal was sold when 2½ years old on Newcastle Cow Hill Fair for £50.

So you see it is not always essential to be aseptic, but I do say come as near to it as you can.—Yours truly,

WM. HUNTER.

Newcastle-upon-Tyne.

A CORRECTION.

On page 561 of last week's issue I am reported as having made a remark, the meaning of which is unintelligible. The remark I did make was, "If veterinary surgeons had more generally joined local associations in the past, then there would have been less need for forming separate veterinary inspectors associations, as work necessary to be done by them could have been done through the local associations."—Yours faithfully,

E. BRAYLEY REYNOLDS.

Royal Veterinary College, Camden Town, N.W.
March 4th.

Veterinary Societies—Addresses.

BORDER COUNTIES V.M.S.
Pres: Mr. J. W. Hewson, M.R.C.V.S., Wigton
Hon. Sec. (pro tem.): Mr. F. W. Garnett, M.R.C.V.S., Dalegarth, Windermere
Meetings, Second Friday of Feb., June, and October

GLASGOW V.M.S.
Pres. Principal McCall.
Hon. Sec. Mr. J. Gibson, 16 Overdale Gdns, Langside, Glas.

ROYAL VETERINARY COLLEGE V.M.A.
Pres: Prof. E. Brayley Reynolds.
Hon. Sec: Mr. B. Gorton, M.R.C.V.S. *Assist*. Mr. E. E. Jelbart

ASSOCIATION OF VETERINARY OFFICERS OF HEALTH
Pres: Mr. T. Douglas, M.R.C.V.S., Kilmarnock
Hon, Sec. & Treas. Mr. A. M. Trotter, M.R.C.V.S., Moore Street, Abattoir, Glasgow

NATIONAL ASSOCIATION OF VETERINARY INSPECTORS
Pres: Mr. J. Abson, F.R.C.V.S., Sheffield
Hon. Sec: Mr. Trevor Spencer, M.R.C.V.S., Kettering

MUNSTER VETERINARY INSPECTORS' ASSOCIATION
Pres: Mr. D. M. Barry, M.R.C.V.S., Mallow
Hon. Sec: Ma. T. I. Alexander, M.R.C.V.S., Kinsall

NATIONAL VETERINARY BENEVOLENT & MUTUAL DEFENCE SOCIETY.
Pres: Mr. W. A. Taylor, F.R.C.V.S., Brick-st, Manchester
Hon. Sec: Mr. G. H. Locke, M.R.C.V.S. Grosvenor Street, Oxford-st., Manchester
Treas: Mr. J. B. Wolstenholme, F.R.C.V.S., Quay-street, Manchester

VICTORIA VETERINARY BENEVOLENT FUND.
Pres. Mr. R. C. Trigger, J.P., Newcastle, Staffs.
Hon. Sec. & Treas: Mr. W. Shipley, F.R.C.V.S. South Town. Great Yarmouth

COLONIAL SOCIETIES (*continued next page*)

VETERINARY ASSOCIATION OF NEW SOUTH WALES
Pres: Mr. S. T. D. Symons, M.R.C.V.S., Chief Inspr. of Stock
V. Pres: Maj. A. P. Gribben, P.V.O., M.R.C.V.S.
Hon. Sec. & Treas; Mr. Max. Henry, M.R.C.V.S., B.V.SC. (SYD). 56 Bridge Street, Sydney.

BRITISH COLUMBIA V.M.A.
Pres: Dr. Gibbons, M.R.C.V.S., Vancouver,
Hon. Pres: Dr. Hamilton, M.R.C.V.S., Victoria.
Sec., Treas., Registrar. Dr. T. Jagger, V.S., Vancouver.

ASSOCIATION MÉDÉCALE VÉTÉRINAIRE FRANÇAISE "LAVAL"
Sec: Mr. J. P. A. Haude, Montreal

PROVINCE OF QUEBEC V.M.A.
Hon. Sec. Mr. Gustave Boyer, Rigaud, P.Q

VETERINARY ASSOCIATION OF ALBERTA
Hon. Sec. Mr. C. H. H. Sweetapple, For Saskatchewan, Alta, Can.

ONTARIO V.A.
Pres: Mr. J. H. Tennent, V.S., London, Ontario
Sec: & Treas: Mr. L. A. Wilson, Toronto, Ontario

TRANSVAAL V.M.A.
Pres: Mr. C. E. Gray, P.V.S., Box 134, Pretoria.
Hon. Sec: Mr. P. Conacher, G.V.S., Box 877, Johannesburg

NATIONAL VETERINARY ASSOCIATION

Past President: Mr. W. Woods, F.R.C.V.S., Wigan
Sec:
Assist. Sec: Mr. W. L. Harrison, F.R.C.V.S.,
11 Anchor Terrace, Southwark Bridge, S.E.
Treas: Prof. G. H. Wooldridge, F.R.C.V.S.,
Ryl. Vet. Coll., Camden Town N.W.

Northern Branch:

Pres, W. A. Taylor, (F) Brick Street, Manchester
Hon. Sec. A. W. Noël Pillers, (F)
71 Smithdown Lane, Liverpool

LANCASHIRE V.M.A.
Pres: Mr. G. H. Locke, M.R.C.V.S.,
Grosvenor-street, Manchester
Hon. Sec. Mr. J. W. Brittlebank, M.R.C.V.S.,
Town Hall, Manchester
Hon. Treas: Mr. E. H. Stent, M.R.C.V.S., Preston-st, Hulme
Meetings, 1st Thursday in April, June, Sept., & Dec.

LIVERPOOL UNIVERSITY V.M.S.
Pres: Mr. J. P. Heyes, F.R.C.V.S., Wigan
Hon. Sec: Mr. A. Walker, M.R.C.V.S., Mill Lane, West Derby
Pathological Sec: Mr. D. C. Matheson, F.R.C.V.S.
Meetings, May. July, October, January.

MIDLAND COUNTIES V.M.A.
Pres: Mr. J. Malcolm, F.R.C.V.S., Birmingham
Hon. Sec: Mr. H. J. Dawes, F.R.C.V.S.,
Camden House, High-st., West Bromwich
Hon. Treas. Mr. J. J. Burchnall, M.R.C.V.S., Barrow-on-Soar
Meetings, Second Tuesday, Wednesday, Thursday, and Friday alternately in Feb., May, Aug. and Nov

NORTH OF ENGLAND V.M.A.
Pres:
Hon. Sec: T. T. Jack, M.R.C.V.S., 3 Elmwood Ter, Sunderland
Meetings, Third Friday, Feb., May, Aug. and Nov.

NORTH MIDLAND VETERINARY ASSOCIATION
Pres: Mr. F. L. Somerset, M.R.C.V.S., Chesterfield
Hon. Sec: Mr. J. S. Lloyd, F.R.C.V.S., Sheffield

NORTH WALES V.M.A.
Pres: Mr. Hugh Williams, M.R.C.V.S., Ty Croes
Hon. Sec. Mr. L. W. Wynn Lloyd, M.R.C.V.S., Carnarvon
Meetings, First Tuesday, March and September

SOUTH DURHAM AND NORTH YORKSHIRE V.M.A.
Pres: Mr. J. M. Walker, F.R.C.V.S., Hartlepool
Hon. Sec. & Treas: Mr. J. H. Taylor, F.R.C.V.S.
Grange Road, Darlington
Meetings, First Friday, Mar., June, Sept. and Dec.

YORKSHIRE VET. ASSOCIATION
Pres: Mr. J. Abson, F.R.C.V.S., Norfolk Street, Sheffield
Hon. Sec; Mr. J. Clarkson, M.R.C.V.S., Garforth, nr.Leeds
Hon. Treas: Mr. A. McCarmick, M.R.C.V.S.,
Kirkstall-road, Leeds

Southern Branch:

Pres. Sir Stewart Stockman, 4 Whitehall Place, S.W.
Sec. T. C. Toope, 34 High Street, Dover

CENTRAL V.S.
Pres. Prof. G. H. Wooldridge, R.V.Coll., Camden Town.
Hon. Sec: Mr. H. A. MacCormack, M.R.C.V.S.,
122 St. George's Avenue, Tufnell Park, N.
Meetings, First Thursday in each month, except August and September, 10 Red Lion Square, Holborn, at 7 p.m.

EASTERN COUNTIES V.M.A.
Pres. Mr. F. Morton Wallis, M.R.C.V.S., Halstead, Essex
Hon. Sec. & Treas: Mr. A. C. Holl, M.R.C.V.S.
New Buckenham
Meetings, Second Tuesday, Feb., July and Sept.

LINCOLNSHIRE AND DISTRICT V.M.S.
Pres. Mr. C. W. Townsend, F.R.C.V.S.,
Long Stanton, Cambridge
Hon. Sec: & Treas: Mr. Tom Hicks, M.R.C.V.S.,
Boston Road, Sleaford
Meetings, Second Thursday Feb., June, and October

ROYAL COUNTIES V.M.A.
Pres: Mr. J. C. Coleman, M.R.C.V.S., Swindon
Hon. Sec. & Treas: Mr. G. P. Male, M.R.C.V.S., Reading
Meetings, Last Friday, Jan., April, July and Nov.

SOUTHERN COUNTIES V.S.
Pres: Mr. G. H. Livesey, M.R.C.V.S., Hove, Sussex
Hon. Sec: Mr. A. H. Archer, M.R.C.V.S., Southsea, Portsmouth
Hon. Treas: Mr. E. W. Baker, M.R.C.V.S., Wimborne
Meetings, Last Thursday, Mar., June and Sept.

SOUTH EASTERN V.A.
Pres. Mr. E. Lyne Dixson, M.R.C.V.S., Margate
Hon. Sec. & Treas. Mr. Theo. C. Toope, M.R.C.V.S.,
34 High Street, Dover
Meeting,

WESTERN COUNTIES V.M.A.
Pres: Mr. C. E. Perry, F.R.C.V.S., Staple Hill, Bristol.
Hon. Sec. Mr. W. Ascott, M.R.C.V.S., Bideford
Hon. Treas: Mr. P. G. Bond, M.R.C.V.S., Plymouth
Meetings, Third Thursday, March, July and November

Irish Branch:

Pres. Mr. W. Watson, Municipal Buildings, Dublin
Sec. Mr. P.D. Reavy, Leafield, Bundoran, Co. Donegal

CENTRAL V.A. OF IRELAND.
Pres: Mr. B. P. J. Mahony, M.R.C.V.S., Maryborough
Hon. Sec. Mr. E. C. Winter, F.R.C.V.S., Queen-st., Limerick
Treas: Mr. J. F. Healy, M.R.C.V.S., Midleton

CONNAUGHT V.M.A
Pres. Mr. D. Hamilton, M.R.C.V.S., Ballina
Hon. Sec. & Treas. Mr. A. J. Moffett, M.R.C.V.S., Galway

VET. MED. ASSN. OF IRELAND.
Pres; Mr. P. J. Howard, M.R.C.V.S., Ennis
Hon. Sec: Prof. J. J. O'Connor, M.R.C.V.S., R.V. Coll., Dublin
Hon. Treas: Prof. J. F. Craig, M.A., M.R.C.V.S.,
R.V. Coll., Dublin

NORTH OF IRELAND V.M.A.
Pres: Mr. J. A. Jordan, M.R.C.V.S., Belfast
Hon. Sec; Mr. J. Ewing Johnston, M.R.C.V.S., Belfast
Hon. Treas;

Scottish Branch:

Pres. Dr. O. Charnock Bradley, } Ryl. (Dick) V et.
Hon. Sec. Prof. A, Gofton, } Coll: Edinburgh

NORTH OF SCOTLAND V.M.S.
Pres: Mr. W. Marshall, M.R.C.V.S., Aberdeen
Hon. Sec. & Treas: Mr. G. Howie, M.R.C.V.S. Alford, Aberdeen
Meetings, Last Saturday in January and August

ROYAL SCOTTISH V.S,
Pres: Mr. Reid, M.R.C.V.S., Auchtermuchty.

SCOTTISH METROPOLITAN V.M.S.
Pres: Mr. J. Riddoch, M.R.C.V.S., Edinburgh
Hon. Sec. & Treas: Mr. Jas. Henderson, M.R.C.V.S.,
Public Health Dept., City Chambers, Edinburgh

WEST OF SCOTLAND V.M.A.
Pres: Prof. John R. McCall, M.R.C.V.S., Vety. Coll. Glasgow
Hon. Sec: Mr. J. F. Macintyre, M.R.C.V.S.,
19 Bank Street, Hillhead, Glasgow
Hon. Treas: Mr. Geo. W. Weir, M.R.C.V.S.,
88 Crookston Street, Glasgow
Meetings, Second Wednesday, May, Oct. and January.

COLONIAL SOCIETIES: *(see preceding page)*

CAPE OF GOOD HOPE V.M.S.
Pres. Mr. J. D. Borthwick, M.R.C.V.S., Cape Town
Hon. Sec. & Treas. Mr. J. W. Crowhurst, F.R.C.V.S.
Longmarket Street, Cape Town

CENTRAL CANADA V.A.
Hon. Sec: Mr. A. E, James, Ottawa

VET. ASSN. OF MANITOBA.
Pres: Dr. W. R. Taylor, Portage la Prairie
Hon. Sec. & Treas: Mr. Wm. Hilton, Winnipeg

NATAL VETERINARY MEDICAL ASSOCIATION.
Pres. Mr. F. J. Carless, M.R.C.V.S., Mooi River
Hon. Sec. & Treas. Mr. A. W. Shilston,
Vety. Research Laboratory, Pietermaritzburg